AMENDMENTS TO THE CLAIMS

Kindly amend the claims, without prejudice, without admission, without surrender of subject matter, and without any intention of creating any estoppel as to equivalents, as follows:

In the Claims:

1. (Currently Amended) An apparatus ~~having a nanodevice for charged particles flow~~ comprising:

a nanodevice for controlling the flow of charged particles, wherein the nanodevice comprises a polymeric foil and at least one preferentially asymmetric pore forming a via hole through said foil, wherein said pore provides a narrow opening of a diameter in the range of several nanometers down to about one nanometer on a front side of said foil and a wide opening in the range of several ten nanometers up to several hundred nanometers on a back side of said foil, and wherein an electrically conductive layer surrounds said narrow opening on said front side;

an electrolytic bath container ~~(2)~~[[,]] that is divided by ~~a~~ said polymeric foil ~~(3)~~ into a first ~~(4)~~ and a second ~~(5)~~ compartment, wherein each of the first and second compartment ~~(4, 5)~~ comprises an electrode ~~(6, 7)~~ connected to a direct current voltage (U_1) supply ~~(8)~~; and

~~at least one preferentially asymmetric pore (9) forming a via hole through said foil (3), wherein said pore (9) provides~~

~~a narrow opening (10) of a diameter in the range of several nanometers down to about one nanometer on a front side (11) of said foil (3) and~~

~~a wide opening (12) in the range of several ten nanometers up to several hundred nanometers on a back side (13) of said foil (3);~~

~~an electrically conductive layer (14) surrounding said narrow opening (10) on said front side (11);~~

a gate voltage (U_2) supply ~~(15)~~ connected to said electrically conductive layer ~~(14)~~ on said front side ~~(11)~~ of said foil ~~(3)~~ controlling the flow of charged particles within said nanodevice ~~(1)~~ from said first compartment ~~(4)~~ to said second compartment ~~(5)~~ and vice versa.

2. (Currently Amended) The apparatus according to claim 1, wherein said preferentially asymmetric pore ~~(9)~~ is a preferentially conical pore.

3. (Currently Amended) The apparatus according to claim 1, wherein said preferentially asymmetric pore ~~(9)~~ is a funnel-like pore from said wide opening ~~(12)~~ toward said narrow opening ~~(10)~~.

4. (Currently Amended) The apparatus according to claim 1, wherein said asymmetric pore ~~(9)~~ is a straight trumpet-like pore from said narrow opening ~~(10)~~ toward said wide opening ~~(12)~~.

5. (Currently Amended) The apparatus according to claim 1, wherein said foil ~~(3)~~ comprises polyethylene terephthalate.

6. (Currently Amended) The apparatus according to claim 1, wherein said foil ~~(3)~~ comprises any polymer, preferentially polyimide.

7. (Currently Amended) The apparatus according to claim 1, wherein said foil ~~(3)~~ comprises polycarbonate.

8. (Currently Amended) The apparatus according to claim 1, wherein said nanodevice ~~(1)~~ is ion selective.

9. (Currently Amended) The apparatus according to claim 1, wherein said electrically conductive layer ~~(14)~~ surrounding said narrow opening ~~(10)~~ on said front side ~~(11)~~ comprises gold.

10. (Currently Amended) The apparatus according to claim 1, wherein said electrically conductive layer ~~(14)~~ surrounding said narrow opening ~~(10)~~ on said front side ~~(11)~~ comprises indium oxide.

11. (Currently Amended) The apparatus according to claim 1, wherein said electrically conductive layer ~~(14)~~ surrounding said narrow opening ~~(10)~~ on said front side ~~(11)~~ is a gate electrode ~~(17)~~.

12. (Currently Amended) The apparatus according to claim 1, wherein said back side ~~(13)~~ of said foil ~~(3)~~ is covered by an electrically conductive layer ~~(14)~~ surrounding said wide opening ~~(12)~~.

13. (Currently Amended) The apparatus according to claim 1, wherein said

nanodevice ~~(1)~~ is applied to control or to switch on and off a charged particle flow of heavy ions, ions of macromolecules, ions of bio-molecules, ionized dimeric, ionized oligomeric or ionized polymeric DNA or ionized insulin.

14. (Currently Amended) A method for producing a nanodevice ~~(1)~~ of an apparatus according to claim 1 comprising the steps of:

irradiating a membrane of a polymeric foil ~~(3)~~ by at least one highly accelerated ion to form an ion trace through said foil;

etching said ion trace;

drying said etched foil ~~(3)~~;

depositing an electrically conductive layer ~~(14)~~ on said front side ~~(11)~~ by diminishing the narrow opening ~~(10)~~;

reopen said narrow opening ~~(10)~~ to a predetermined diameter by etching said conductive layer ~~(14)~~ from its back side ~~(13)~~.

15. (Currently Amended) The method according to claim 14, wherein a single bismuth ion is accelerated to an energy in the range of 10 to 15 MeV and irradiated toward said polymeric foil ~~(3)~~ to form said ion trace.

16. (Original) The method according to claim 14, wherein said ion trace is etched by a caustic solution.

17. (Original) The method according to claim 16, wherein said caustic solution

comprises 9 m NaOH.

18. (Original) The method according to claim 4, wherein said ion trace is etched at room temperature.

19. (Currently Amended) The method according to claim 14, wherein said deposition is carried out by sputtering a metal or a semiconductor on to said front side (11).

20. (Currently Amended) The method according to claim 14, wherein said front side (11) of said foil (3) is roughened before etching said ion trace.

21. (Original) The method according to claim 14, wherein said membrane is inserted in an electrolytic cell consisting of two cell halves filled with a KF solution and being divided by said membrane and sealed hermetically to etch said ion trace.

22. (Currently Amended) The method according to claim 14, wherein a conductive tape is attached to the conductive layer ~~(14)~~ before said reopening of said narrow opening ~~(10)~~ is performed.

23. (Currently Amended) The method according to claim 22, wherein said foil covered on its front side ~~(11)~~ by a conductive tape is reentered to said electrolytic cell, which cell halves are now filled with NaF.

24. (Currently Amended) A method to control an ion flow with pores of a diameter up to hundreds of nm within a membrane, which constitute a large-pore set-up, ~~wherein said~~ the method comprising:

providing, within said large-pore set-up ~~the layer to represent the~~, a layer representing a third electrode of an electrically conductive material, wherein the pores are not selective with respect to different ion species; and

~~wherein~~ superimposing, using the potential on the conductive layer (U_2), ~~superimposes the~~ a potential difference applied across the membrane (U_1), which for a given voltage configuration ~~provider an enhancing~~ enhances or ~~a stopping of~~ stops ions.

25. (Original) The method of claim 24, wherein the membrane contains 10^7 pores/cm^2 and is made of a methylene blue dye.